

WHAT IS CLAIMED IS:

1. A method for measuring bacteria comprising:
fluorescently staining bacteria in a sample;
detecting size information from the bacteria in the
5 sample, and fluorescence information expressing intensity of
fluorescent light emitted by the bacteria;
creating a scattergram representing a distribution of
the bacteria based on the size information and the
fluorescence information detected;
10 analyzing the distribution of the bacteria in the
scattergram; and
determining whether the bacteria in the sample is
bacillus or coccus based on a result of the analyzing.
- 15 2. The method of Claim 1, wherein a value representing a
state of the distribution is determined in the analyzing.
3. The method of Claim 1, wherein a maximum variance
direction of the distribution is determined in the
20 analyzing.
4. The method of Claim 3, wherein a slope of the maximum
variance direction is determined in the analyzing.
- 25 5. The method of Claim 1, wherein a fluorescent dye
configured for staining intracellular material of the
bacteria is used to stain the bacteria.
6. The method of Claim 1, wherein a fluorescent dye
30 configured for staining nucleic acid within cells of the
bacteria is used to stain the bacteria.
7. The method of Claim 1, wherein a polymethene

fluorescent dye is used to stain the bacteria.

8. The method of Claim 1, wherein the size information of the bacteria comprises intensity of scattered light obtained from the bacteria.

9. The method of Claim 1, wherein the size information of the bacteria is detected based on a change in electrical resistance caused when the bacteria pass through a pore to which a voltage is applied.

10. The method of Claim 1, wherein the fluorescence information and the size information of the bacteria are detected by flow cytometry.

11. A bacteria measuring apparatus comprising:
a sampling device for sampling a sample comprising fluorescently stained bacteria;
a first detector for detecting size information from each bacterium in the sample;
a second detector for detecting fluorescence information expressing intensity of fluorescent light emitted from each bacterium in the sample; and
a control unit configured for creating a scattergram of the bacteria using the size information and the fluorescence information as parameters, for analyzing distribution of the bacteria in the scattergram, and for determining whether the bacteria in the sample is bacillus or coccus based on an analysis result.

12. The apparatus of Claim 11, wherein the control unit determines a value representing a state of the distribution.

13. The apparatus of Claim 11, wherein the control unit determines a maximum variance direction of the distribution.

14. The apparatus of Claim 13, wherein the control unit
5 determines a slope of the maximum variance direction.

15. The apparatus of Claim 11, wherein the first detector detects scattered light obtained from the bacteria.

10 16. The apparatus of Claim 11, wherein the first detector comprises:

a member having a pore for passing through the bacteria; and

first and second electrodes;

15 wherein the first detector detects electrical resistance between the first and the second electrodes, which is generated by passage of the bacteria through the pore.

20 17. The apparatus of Claim 11, further comprising:

a flow cell for flowing the sample comprising the bacteria; and

a laser light source for irradiating the sample within the flow cell;

25 wherein the first detector detects scattered light emitted from the bacteria in the sample irradiated by the laser light source; and

wherein the second detector detects the fluorescent light emitted from the bacteria in the
30 sample irradiated by the laser light source.

18. The apparatus of Claim 11, further comprising:

a specimen holding part for placement of a specimen;

a reagent holding part for placement of fluorescent dye reagent; and

a mixing part for preparing a sample by mixing the specimen and the fluorescent dye reagent.

5

19. The apparatus of Claim 11, further comprising an output part for outputting a result determined by the control unit.

20. The apparatus of Claim 19, wherein the output part
10 outputs a warning when the control unit has determined that determining bacteria type is difficult.

21. The apparatus of Claim 19, wherein the output part
15 outputs a degree of reliability for a type of bacteria determined.

22. A storage medium for storing a computer-executable program for analyzing bacteria, the program comprising:
obtaining size information of bacteria and fluorescence
20 information expressing intensity of fluorescent light emitted by the bacteria;

creating a scattergram representing a distribution of the bacteria based on the size information and the fluorescence information;

25 analyzing the distribution of the bacteria in the scattergram; and
determining whether the bacteria is bacillus or coccus based on a result of the analyzing.

30 23. A method for measuring bacteria comprising:
fluorescently staining bacteria in a sample;
detecting size information from the bacteria in the sample, and fluorescence information expressing intensity of

fluorescent light emitted by the bacteria;
analyzing the size information and the fluorescence
information detected; and
determining whether the bacteria in the sample is
5 bacillus or coccus based on a result of the analyzing.

24. A method for measuring bacteria comprising:
fluorescently staining bacteria in a sample;
irradiating light to the bacteria;
10 detecting optical information from the bacteria in the
sample;
analyzing the optical information detected; and
determining whether the bacteria in the sample is
bacillus or coccus based on a result of the analyzing,
15 wherein the optical information comprises fluorescent
light emitted by the bacteria in the sample.

25. A bacteria measuring apparatus comprising:
a sampling device for sampling a sample comprising
20 fluorescently stained bacteria;
a first detector for detecting size information from
each bacterium in the sample;
a second detector for detecting fluorescence
information expressing intensity of fluorescent light
25 emitted from each bacterium in the sample; and
a control unit configured for analyzing the size
information and the fluorescence information, and for
determining whether the bacteria in the sample is bacillus
or coccus based on an analysis result.

30 26. The apparatus of claim 25, further comprising an output
part,
wherein the control unit creates a scattergram based on

the size information and the fluorescence information, and the output part outputs the scattergram created.

27. A bacteria measuring apparatus comprising:

5 a sampling device for sampling a sample comprising fluorescently stained bacteria;

an optical detection unit configured for irradiating the bacteria in the sample, and for detecting optical information from the bacteria; and

10 a control unit configured for analyzing the optical information detected, and for determining whether the bacteria in the sample is bacillus or coccus based on an analysis result,

wherein the optical detection unit comprises a detector
15 for detecting fluorescent light emitted by the bacteria in the sample.

20

25

30